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## **INTERIM BISON MANAGEMENT PLAN**

## **DRAFT ENVIRONMENTAL ASSESSMENT**

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OCT 16 1995

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**National Park Service  
Yellowstone National Park, Wyoming**

**State of Montana  
Helena, Montana**

**December 20, 1995**

*FILED*



## INTRODUCTION

Bison (Bison bison) management is necessary to meet the management responsibilities of the respective cooperating agencies, to prevent the possible transmission of brucellosis from bison to domestic cattle, to address private property damage in Montana, and to address potential threats to human safety when bison occur on private land in Montana. The possible association between cattle and bison that may have been exposed to or infected with Brucella abortus, the transmission of brucellosis to cattle, or the presence of bison from a known infected herd in Montana could adversely affect Montana's ability to freely market cattle.

This environmental assessment (EA) analyzes the extent and type of involvement of the National Park Service (NPS), United States Department of Agriculture, Forest Service (USFS), United States Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Montana Department of Fish, Wildlife and Parks (FWP), and Montana Department of Livestock (DOL) (collectively the cooperating agencies) in a proposed action to manage bison in the areas of the north and west boundaries between Yellowstone National Park and the State of Montana. Responsibility for specific actions may be held jointly by more than one cooperating agency; however, the cooperating agencies' actions are limited by each agency's respective legal authorities, responsibilities, and duties. This environmental assessment does not expand the legal authorities, responsibilities, or duties of any of the cooperating agencies.

Short-term or interim bison management plans were developed in 1990 and 1992 (National Park Service 1990, 1992) to address immediate management concerns until a long-term plan and environmental impact statement (EIS) could be completed. These interim plans provided for cooperative bison management between the state of Montana and the National Park Service (NPS).

Several changes have occurred since 1992 when the last environmental assessment described and analyzed the respective agencies' roles in interim management actions for bison migrating from Yellowstone into Montana. The bison population has increased from about 3,400 animals in 1992 to about 3,900 animals in 1995 (Table 1). During winter months, bison continue to migrate from Yellowstone onto public and private lands in Montana. In response to the presence of these bison in Montana, APHIS and state animal health veterinarians from nine states questioned whether the Montana State Veterinarian had sufficient control of bison to prevent transmission of brucellosis from wild bison to domestic cattle. Early in 1995, six states imposed brucellosis testing requirements on cattle shipped from Montana into their states. Further, the 1995 Montana Legislature assigned primary management responsibilities for publicly owned or wild bison migrating into Montana from a herd infected with a dangerous disease to the Montana Department of Livestock (see MCA 81-2-120). As part of a settlement agreement to a lawsuit the

**Table 1. Total parkwide winter bison counts and bison management removals outside Yellowstone National Park, 1975-1995.\***

Winter	Total winter bison counts	Management removals outside Yellowstone National Park		
		West Boundary	North Boundary	Total Removals
1975-76		0	8	8
1976-81		0	a few bulls	a few
1981-82		0	0	0
1982-84		0	0	0
1984-85	2,114	0	88	88
1985-86	2,291	16	41	57
1986-87	2,433	6	0	6
1987-88	2,644	33	2	35
1988-89	3,159	0	569	569
1989-90	2,606	3	1	4
1990-91	3,178	14	0	14
1991-92	3,426	22	249	271
1992-93	3,304	79	0	79
1993-94	3,551	5	0	5
1994-95	3,956	120	307	427

\*from M. Meagher, 1993 unpubl. data; M. Meagher, pers. commun.

State of Montana brought against the NPS and APHIS in January 1995, the NPS jointly developed, with the state of Montana and APHIS, new interim bison management procedures and agreed to identify those procedures as a proposed action for interim bison management.

In a separate planning effort, the NPS, FWP, DOL, APHIS, and USFS are co-leads in developing and preparing a long-term plan to manage bison migrating from Yellowstone into Montana. That effort began in 1989 and, as part of a November 1995 court settlement agreement, will be completed May 1, 1997.

The proposed interim management procedures would occur concurrently with the planning and environmental compliance associated with the long-term management plan. The interim management plan would be effective until the long-term bison management plan is approved and implemented. Any interim management action would not preclude or prejudice the consideration of any and all alternatives for long-term bison management and the associated EIS.

#### **PURPOSE AND NEED**

This environmental assessment analyzes the extent and type of environmental consequences resulting from managing bison that are wild and free-ranging within Yellowstone National Park and that migrate, primarily during winter, from Yellowstone National Park onto public and private lands in Montana along the northern and western boundaries of the park. This document describes proposed management actions that reduce risk and prevent transmission of brucellosis from bison to cattle in areas of Montana adjacent to Yellowstone National Park and reduce the indiscriminate killing of those bison posing no disease threat to domestic cattle. The proposed management actions would maintain a wild, free-ranging, self-sustaining bison population in Yellowstone National Park and would prescribe circumstances where bison could use adjacent public lands.

The Animal and Plant Health Inspection Service has determined that the provisions of the settlement agreement are sufficient to maintain Montana's compliance with 9 CFR (Code of Federal Regulations) Part 78 and Brucellosis Eradication Uniform Methods and Rules (UM&R) and will not seek to downgrade Montana's Class Free status, based on the presence of bison in Montana, as long as Montana complies with its responsibilities as defined by the interim operating procedures. Additionally, it is likely other states will concur with the determination of APHIS. The interim operating procedures would increase the level of control on bison migrating from Yellowstone National Park into the West Yellowstone, Montana, area and the Reese Creek area near Gardiner, Montana. The proposed management actions also reflect new Montana laws revising bison management responsibilities of DOL and FWP.

## BACKGROUND

Wild, free-ranging bison have been an integral part of the Yellowstone environment since prehistoric times (Meagher 1973). Early explorers first observed numerous bison in the Yellowstone area in the early 1800s, but bison were probably eliminated outside Yellowstone by 1872 when the park was established. Poaching and market hunting inside Yellowstone reduced bison numbers to an actual count of 23 animals in Yellowstone's Pelican Valley in 1902 (Meagher 1973). After 1900, strong protection from poaching allowed the resident bison herd to gradually increase.

In 1902, 21 captive bison from the Pablo-Allard herd in Montana and the Goodnight herd in Texas were brought to Mammoth Hot Springs as a tourist attraction. In 1907, the herd was moved to the "Buffalo Ranch" in the Lamar Valley where it was fenced and intensively managed to increase herd size until about 1915. In 1917, brucellosis was first detected in bison in Yellowstone National Park (Meagher 1973).

During the early 1900s, the park's native bison herd in Pelican Valley was increasing. In the 1930s, NPS policy began to shift to the preservation of bison in a more natural state with less artificial manipulation. In 1936, NPS transplanted bison to the Firehole and Hayden Valley areas and they eventually established the Mary Mountain herd (Meagher 1973). Through removal operations, bison population numbers were manipulated based on range carrying capacity studies (1,000 bison for the northern range, Rush 1932) and for other management reasons until 1967.

Through past removal operations, bison from Yellowstone were transferred to public and private herds. In 1916, Yellowstone bison of unknown or unrecorded brucellosis status were transferred to Windcave National Park (Quortrup 1944). In the early 1960s, brucellosis reactor bison were among those tested for transfer to the B-B buffalo ranch (now the Durham ranch) in Gillette, Wyoming (APHIS, unpubl. data). Both recipient herds were eventually found to be infected with brucellosis, but no attempts were made that determined the source of the disease was bison from Yellowstone National Park (APHIS unpubl. data). The proposed plan in this environmental assessment does not include transferring live bison, except for research purposes, to anywhere in the United States.

In 1968, efforts to minimize the potential transmission of the brucella organism to cattle outside the park boundaries resulted in the NPS proposing a boundary control program as an alternative to controlling brucellosis in bison within the park (Meagher 1989). This program was based on the presumption of a minimal likelihood of large-scale bison movements to boundary areas. The program attempted to prevent bison from leaving the park and relied on shooting bison that approached specific boundary areas. Park personnel shot three bulls in 1974 and one cow and one bull in 1978.



In recent years during the winter months, bison have migrated north and west of the park boundary onto public and private lands in Montana. As early as the winter of 1975-76, NPS and FWP made numerous attempts to discourage bison from leaving the park, primarily along the northern boundary. Hazing, herding, physical barriers, and scare devices were unsuccessful in precluding movements (Meagher 1989). In 1985, the Montana Legislature authorized a public damage-control hunt of bison migrating onto private lands primarily north of the park near Reese Creek. The reduction hunts continued until strong public disapproval over the hunts peaked during the winter of 1988-89 when 569 bison were killed. The Montana Legislature then rescinded authorization for the hunt, and cooperative efforts between the NPS and FWP were initiated to control bison migrating into Montana. Since 1990, FWP personnel have shot bison migrating into Montana that were threatening Montana's brucellosis class-free status, damaging private property, or threatening human safety. Upon request and under the direction of the FWP, the NPS acted as a cooperator in these management actions, including hazing and shooting bison and disposal of offal resulting from the carcass processing operations. In 1995, the Montana Legislature assigned primary management responsibilities for wild bison that are from herds exposed to or infected with brucellosis to DOL (MCA 81-2-120). As part of a settlement agreement to a lawsuit the state of Montana brought against the NPS and APHIS in 1995, the NPS, Montana, and APHIS jointly developed new interim bison management procedures.

#### **ALTERNATIVES CONSIDERED**

##### **ALTERNATIVE 1. REVISED INTERIM BISON MANAGEMENT OPERATING PROCEDURES (PROPOSED ACTION)**

NPS, the state of Montana, and APHIS propose to implement the interim bison management operating procedures that are contained in the November 1995 settlement agreement (Appendix A). A summary and description of those procedures follows.

Management of bison that migrate from within Yellowstone National Park to public and private land within Montana would employ a variety of methods to prevent the potential spread of brucellosis from bison to domestic cattle, to reduce the potential for damage to personal property, to reduce threats to human safety, and to prescribe circumstances in which bison may freely range on adjacent federal lands where cattle are not present. The proposed actions of the DOL, FWP, NPS, USFS, and APHIS Veterinary Services (VS) are described in this alternative.

A site-specific management strategy is identified for each of the locations in which bison traditionally migrate from Yellowstone National Park into Montana. Accordingly, management objectives vary for the Reese Creek, Eagle Creek/Bear Creek,

Hellroaring Creek, Slough Creek, West Yellowstone, and Lee Metcalf Wilderness/Cabin Creek Recreation and Wildlife Management (Lee Metcalf/Cabin Creek) areas. The management direction for each area is described, the actions to be taken are discussed individually, and the state or federal agency with lead responsibility for the action is identified. For some actions, more than one agency may be listed. In this case, those agencies are jointly responsible for the action to the extent permitted by each agency's legal mandate and jurisdiction. The proposed action for each area follows.

#### **Eagle Creek/Bear Creek Area**

The management objective for the Eagle Creek/Bear Creek area is to limit the distribution of free-ranging bison to specified adjacent federal lands and to prevent bison from migrating farther onto private lands. The land-use allocation on these federal lands precludes permitted cattle and the topography tends to restrict bison to the public lands. Bison activities and movements would be monitored. No effort would be made to remove any bison in the Eagle Creek/Bear Creek area (Figure 1) until the animals move north or west and approach the boundary between the Gallatin National Forest and private property in the vicinity of the Little Trail Creek-Maiden Basin hydrographic divide.

Monitoring-- Monitoring activities would include aerial or ground reconnaissance of individual bison or groups of bison. The NPS would monitor, record, and notify cooperating state agencies of bison activity within Yellowstone National Park. From June 1 to October 1, little monitoring would be needed, as few bison are expected to move toward the north boundary. However, monitoring activities may occur at any time of the year. Monitoring of bison near the north boundary area would occur during the winter months and would range in frequency from once per week to twice per day.

During winter months, the NPS would monitor and record the presence of all bison outside the park in the Eagle Creek/Bear Creek area twice per week. As bison approach the Little Trail Creek-Maiden Basin hydrographic divide, bison monitoring would occur daily. The DOL and FWP would assist NPS with the monitoring of bison in the Eagle Creek/Bear Creek area.

Hazing Operations-- The NPS, DOL, and FWP may attempt strategic hazing of bison to discourage bison from leaving the Eagle Creek/Bear Creek area or to move bison off of private land. Strategic hazing includes any management action designed to move bison into the Eagle Creek/Bear Creek area or move bison off of private land.



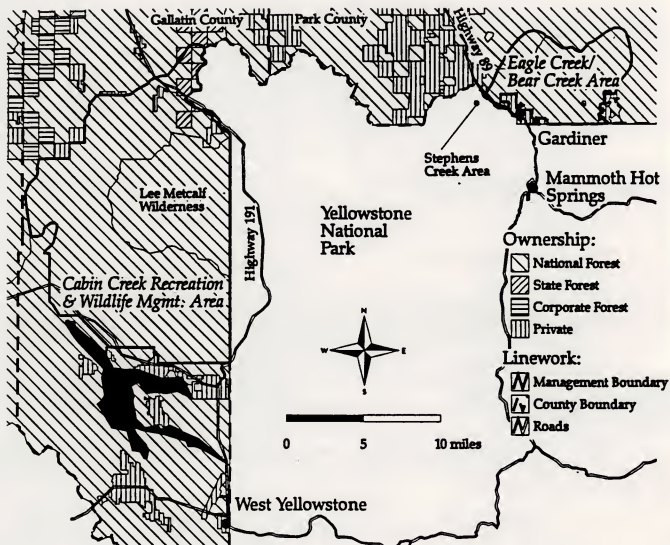


Figure 1. Map of project area.

Shooting Operations-- Bison approaching or migrating north or west of the Little Trail Creek-Maiden Basin hydrographic divide would be shot. The DOL would have primary authority for identifying and removing bison on private or public lands outside of Yellowstone National Park. At the request and under the authority of DOL, NPS personnel would assist in shooting operations outside Yellowstone National Park. The involved agencies would fully document all shooting operations.

This alternative is intended to prevent bison from leaving public lands and moving onto private lands. However, it is possible that bison may move long distances in a brief period and thus could migrate onto private lands. In these situations and at the request of private landowners, DOL, FWP, and NPS may use shooting to remove individual bison or small groups of bison on private lands in the Eagle Creek/Bear Creek area. Alternatively, Montana law allows private landowners to shoot bison on their land if livestock are present and if Montana agencies are unable to respond in a reasonable time.

Capture Operations-- No effort would be made to remove any bison in the Eagle Creek/Bear Creek area using capture facilities.

#### **Reese Creek Area**

The management objective for the Reese Creek area is to prevent bison from leaving Yellowstone National Park in the Reese Creek boundary area and moving north onto adjacent private land where cattle are grazed. Capture operations (located in the Stephens Creek area, Figure 1) would be the primary method used to prevent movement of bison onto adjacent private land. Agency personnel would immediately remove bison that evade capture and leave Yellowstone National Park in this area.

Monitoring-- In the Reese Creek area, the NPS, DOL, and FWP would employ the general monitoring activities described above for the Eagle Creek/Bear Creek area.

Hazing Operations-- The NPS, DOL, and FWP may attempt strategic hazing of bison to discourage bison from leaving the park, to move bison back into the park, or to move bison farther into the park away from the park boundary. Because capture operations are the primary management activity, the NPS may also use hazing to capture migrant bison north of Stephens Creek in the Reese Creek area or to capture those bison initially evading the capture facilities.

Shooting Operations-- In the Reese Creek area outside of Yellowstone National Park, bison that evade the capture facilities and that cannot be hazed back into the capture

facilities would be shot, with the permission of the private landowner. Upon request and under the authority of DOL, NPS personnel would assist in shooting these bison. The involved agencies would fully document all shooting operations. All efforts would be made to retrieve bison carcasses resulting from shooting operations.

Capture Operations-- Capture and shipment to slaughter would be the primary method used to prevent bison migration from Yellowstone National Park onto private lands north of the Reese Creek area. Portable capture and handling facilities would be maintained near the Reese Creek area within Yellowstone National Park.

Any capture and handling facility for bison would meet the following site criteria:

- Holding pastures, corrals, handling equipment, and wing fences (collectively called capture facilities) would be portable, temporary structures.
- Capture facilities would utilize existing road systems to allow for maintenance and operation of the facility and to allow transport of bison to slaughter facilities.
- Capture facilities would have an appropriate and adequate water supply for bison. Hay would also be available for feeding bison if they were held in capture facilities for more than 24 hours.
- In accordance with applicable state and federal laws and regulations, cultural and natural resource inventories and assessments would be conducted in areas where capture facilities would be placed. Placement of the capture facilities would avoid any known significant or sensitive cultural resources.
- Ground disturbance would be kept to the minimum necessary for proper construction of the facilities.
- Placement of the capture facilities would avoid significant wetland and riparian areas and avoid areas having rare or sensitive plant species.
- Only one facility would be located inside Yellowstone National Park in the Reese Creek area.
- Facilities would be constructed and operated in such a manner that capture and handling of bison would be as humane as possible.

The NPS would operate the Reese Creek facility for the purpose of capturing all migrant bison at this location. At the request and under the direction of the NPS, cooperating agencies would assist in the operation of the facilities. Bison would be killed and processed at approved portable or permanent slaughter facilities outside the park boundary.

Distribution of Bison Carcasses-- The NPS reserves the authority to provide any bison captured inside Yellowstone National Park to the state of Montana or to Native American tribes or associations pursuant to federal laws or policies. The DOL would salvage all bison carcasses fit for human consumption that are obtained from management actions outside of Yellowstone National Park. The DOL would cooperate with social services organizations or tribal governments in exchange for assistance in processing the carcasses and distributing the meat. The DOL may also sell carcasses and use the revenue to offset DOL, FWP, and NPS operating costs. Some carcasses may also be used for approved research purposes.

#### **West Boundary Area**

The management objective for the West Boundary area is to limit distribution of bison to Yellowstone National Park and certain public lands that are adjacent to Yellowstone National Park. The distribution of bison would be limited to times, situations, and locations in which the risk of brucellosis transmission from bison to cattle could be controlled.

Bison movements would be monitored and all bison that leave Yellowstone National Park in the vicinity of West Yellowstone, Montana, from May 1 through October 31 would be immediately removed or hazed back into the park. Portable and temporary capture and handling facilities would be maintained, potentially at several locations, at or near the Yellowstone National Park boundary in the West Yellowstone area. From November 1 through April 30 management actions would remove all bison that move onto private lands (with the consent of the private landowner) and restrict bison on public lands to males and non-pregnant females that have tested negative for brucella antibodies.

Monitoring-- The general monitoring activities outlined above for the North Boundary area would also be used for the West Boundary area except as noted below. On a daily basis, the NPS would monitor bison occurring inside the park near West Yellowstone. Three times per week, DOL, with assistance from FWP, NPS, and USFS, would monitor and record the presence of all bison found outside the park in the West Yellowstone area.

Hazing Operations-- Strategic hazing of bison may be attempted to discourage bison from leaving the park, to move bison back into the park, or to move bison farther into the park away from the park boundary. Agencies may also use hazing to facilitate capture of migrant bison in the West Yellowstone area. From May 1 through October 31, DOL may haze all bison in the West Yellowstone area back into the park.

Shooting-- With permission of the landowner, DOL may shoot all bison occurring on private land at any time of year outside Yellowstone National Park's western boundary. From November 1 through April 30, DOL also may choose to shoot bison outside Yellowstone National Park that have evaded capture operations in the West Yellowstone area.

Capture Operations-- From November 1 through April 30, capture operations would be used to manage bison migrating from Yellowstone National Park to areas south of Grayling Creek/Fir Ridge in the West Yellowstone area. Portable and temporary capture and handling facilities would be erected and maintained at one or more locations at or near the Yellowstone National Park boundary in the West Yellowstone area for the purpose of capturing bison. The Animal and Plant Health Inspection Service would provide materials for at least one facility. Capture facilities in the West Yellowstone area would follow site criteria described for the capture facilities in the Reese Creek area.

All captured bison would be serologically tested in the field for the presence of brucella antibodies. All serologically positive bison would be sent to approved slaughter facilities. Some bison selected for collection of blood and tissue samples for disease surveillance may be slaughtered on-site. All sero-negative pregnant female bison would also be sent to slaughter because the potential exists that some sero-negative, pregnant bison may develop a brucellosis infection and shed the brucella bacteria into the environment. All sero-negative males and sero-negative, nonpregnant females would be identified with an electronic marker and an unobtrusive visual marker and would be released on-site.

Released bison may be vaccinated for brucellosis, but a safe, effective vaccine for bison is not currently available. Pending completion of studies on its safety and effectiveness, RB51 may be used on bison in the future.

Collection of Blood and Tissue Samples-- Blood and tissue samples would be collected from bison for the purpose of disease surveillance or other research. The DOL would be responsible for the collection of blood and tissue samples taken for disease surveillance from bison that are slaughtered or shot. The DOL would assure that appropriate personnel are on site to accomplish sample collection. Personnel from the National Biological



Service (NBS), APHIS Veterinary Services, FWP, and NPS may assist DOL with the collection of blood and tissue samples.

Tissue samples would be collected from all sero-negative, pregnant females. Sampling protocols would be based on those developed by the Greater Yellowstone Interagency Brucellosis Committee (GYIBC). The APHIS Veterinary Services and the National Biological Service (NBS), with assistance from DOL, FWP, and NPS, would provide qualified personnel to conduct necropsies and collect tissues. Veterinary Services also would be responsible for all culture and serology samples and tests. Test results would be provided to all cooperating agencies. Logistic considerations that preclude collection of tissues samples from sero-negative, pregnant females would not constrain the slaughter of bison from the West Yellowstone area.

#### **Other Areas**

Bison occasionally leave Yellowstone National Park in locations other than those where active management is proposed. Generally, these bison use public lands in remote areas, in areas allocated to uses precluding domestic cattle, and in topographic situations precluding further migration. In these areas no management actions, other than monitoring, will be taken. Bison that move into the Hellroaring Creek, Slough Creek, and north of Grayling Creek/Fir Ridge areas in portions of the Lee Metcalf/Cabin Creek area (Figure 1) would be monitored. It is unlikely bison will move beyond those areas. If bison moved beyond those areas, agency personnel would haze or shoot those bison.

#### **ALTERNATIVE 2. CONTINUATION OF CURRENT INTERIM BISON MANAGEMENT PLAN**

Actions described in the current interim bison management operating plan and analyzed in a 1992 EA would continue. Under that plan and as modified by this alternative, Yellowstone National Park personnel would assist, at the request and under the authority of the state of Montana, in shooting bison in Montana that pose a threat to private property, human safety, or potentially threaten compliance with 9 CFR Part 78, and the UM&R.

Department of Livestock would continue shooting bison migrating from Yellowstone National Park into Montana. The state of Montana's actions are described in a October 20, 1995, Decision Notice and Environmental Assessment (Department of Livestock 1995). These actions provide for immediate removal of bison found on private land (including those in the Reese Creek area) following the request and permission of the landowner. From May 1 through October 31, bison found on Gallatin National



Forest lands in the West Yellowstone area would be removed. From November 1 through April 30, the Montana State Veterinarian would selectively determine which bison in the West Yellowstone area would be shot.

Bison north of Yellowstone in the Eagle Creek/Bear Creek area would be monitored. No other management action is planned in this area unless bison move north or northwest of the Maiden Basin-Little Trail Creek hydrographic divide, in which case agency personnel would immediately shoot those bison.

Bison north of Yellowstone National Park in the Hellroaring Creek and Slough Creek drainages and bison found north of the Grayling Creek/Fir Ridge area in the Lee Metcalf/Cabin Creek area would also be monitored. Although unlikely, agency personnel would shoot any bison moving beyond these areas in Montana.

Distribution of Bison Carcasses-- Department of Livestock would salvage all bison carcasses fit for human consumption. Salvage of carcasses would be accomplished through cooperative agreements with social services organizations or tribal governments in exchange for assistance in processing the carcasses and distributing the meat. The DOL may also sell carcasses and the revenue would be used to offset costs of cooperating agencies.

#### **ALTERNATIVE CONSIDERED BUT REJECTED**

##### **NO FEDERAL ACTION**

Under this alternative, the National Park Service would not participate in managing bison migrating from Yellowstone National Park into Montana. Management of bison inside the park would continue under current NPS management policies and guidelines and no effort would be made to actively manipulate or remove bison from the Yellowstone population. Other than to assure public safety within Yellowstone National Park, no shooting of any bison would take place within park boundaries. No federal action would be taken inside or outside park boundaries to control the movement of the bison herds.

This alternative was rejected because it would not provide a method for NPS and the State of Montana to work cooperatively toward implementing final interim bison operating procedures, as required by the terms of the court settlement agreement between NPS and APHIS and the State of Montana.

## AFFECTED ENVIRONMENT

### Project Area

The project area includes those portions of Park and Gallatin counties bordering the northern and western portions of Yellowstone National Park. Specific areas where management activities may occur include the Eagle Creek/Bear Creek area, Reese Creek area (including Stephens Creek area, which is a portion of the Reese Creek area), Hellroaring Creek drainage, Slough Creek drainage, the West Yellowstone area, the Lee Metcalf/Cabin Creek area (Figure 1).

### Climate

The northern winter range includes the northern portion of Yellowstone National Park along the Lamar, Gardner, and Yellowstone river drainages (Houston 1982, USFWS 1994) and extends along the Yellowstone River drainage north approximately 20 miles to Dome Mountain in Montana. Elevation varies from approximately 1,560 m (5,100 feet) to more than 2,100 m (7,000 feet). Temperatures may range from more than 32° C (90° F) in summer to below -40° C (-40° F) in winter. Annual precipitation averages 26 cm (10 inches) at Gardiner, Montana (Dirks and Martner 1974) and 38 cm (15 inches) at Tower (Dirks and Martner 1978). In Yellowstone National Park, annual snowfall on the northern winter range averages 203 cm (80 inches) at Mammoth and 262 cm (103 inches) at Tower.

The western boundary area near West Yellowstone, Montana, generally lies above an elevation of 2100 m (7,000 feet). Temperatures average 13.3° C (56° F) in summer and 10° C (14° F) during winter, with temperatures below -40° C (-40° F) common (Dirks and Martner 1978). Average annual snowfall in the western boundary area is 417 cm (164 inches).

### Vegetation

The northern boundary area is steppe or shrub steppe, consisting of grassland or sagebrush (*Artemisia* sp.)-grassland communities. Conifers, including Douglas-fir (*Pseudotsuga menziesii*) and lodgepole pine (*Pinus contorta*), occur as scattered individuals or in small stands at higher elevations on north slopes. Conifers and aspen are dominant in about 41% and 2% of the northern range, respectively. Riparian shrub areas compose about 0.4% of the northern range (Mack and Bishop 1993).

The Stephens Creek area consists of gravelly, glacial outwash soils, with scattered large rocks and boulders. Before the turn of the century and until Yellowstone acquired it, the Stephens Creek area was cleared of large rocks and cultivated.

In the 1950s, crested wheatgrass (Agropyron sp.) was planted in the fields (Allen 1995). Juniper (Juniperus communis) is scattered throughout the Stephens Creek area, and cottonwood (Populus sp.) grows along drainages (Griffin 1994).

The vegetation of the western boundary area includes big sage (Artemisia tridentata), Idaho fescue (Festuca sp.), and lodgepole pine (Pinus contorta). Sedge (Carex sp.) and willow (Salix sp.) groves are found along the riparian areas of the Madison River, Cougar Creek, and Duck Creek, and bison use these areas during the winter months (M. Meagher, 1993 unpubl. data).

## Wildlife

In 1902, 23 bison were counted in the native Yellowstone herd. Due to subsequent protection from poaching, the number of wild bison steadily increased. Bison from captive herds were introduced in 1902 and held in enclosures, first at Mammoth and then in 1907 moved to facilities at Lamar (Meagher 1973). Between 1915 and 1920, intermingling of the introduced and wild animals began. By 1929, bison wintering in the Lamar area numbered more than 1,000 (Meagher 1973). Beginning in the 1930s, the NPS reduced bison numbers wintering in Lamar (Meagher 1973). By 1952, management reductions lowered the number of bison in Lamar to 143 individuals (Meagher 1973). In January 1954, an aerial count of all primary wintering valleys indicated the bison population in the park was 1,477. Subsequent reductions conducted on the northern range (Lamar), Mary Mountain, and Pelican Valley herds lowered the population of bison in the park to 397 individuals by 1967 (Meagher 1973). Beginning in 1967, manipulative management of bison in the park ceased. Under a new policy of minimal management, the bison population increased to about 2,800 in 1988 (Figure 3). By late summer 1995, the bison population numbered between 3,500 and 3,900 individuals (M. Meagher, pers. commun.).

Between 1985 and 1995, 1,555 bison were removed from the population through bison management actions outside of the park in the state of Montana (Table 1). Despite natural mortality and recent management removals during this time, bison numbers increased (Table 1 and Figure 3).

Other ungulates in the affected area include antelope (Antilocapra americana), mule deer (Odocoileus hemionus), elk (Cervus elaphus), and moose (Alces alces). Scavengers in the affected area include coyotes (Canis latrans), ravens (Corvus corax), crows (Corvus brachyrhynchos), magpies (Pica pica), and red fox (Vulpes vulpes). Threatened or endangered vertebrates in the affected area include grizzly bears (Ursus arctos), gray wolves (Canis lupus), bald eagles (Haliaeetus leucocephalus), and peregrine falcons (Falco peregrinus). Although whooping cranes (Grus americana) have been seen in the park, they have not been observed in the western or northern boundary areas (Yellowstone National Park 1992).

## Land Ownership

The proposed project area includes Park and Gallatin counties of Montana. A 10-mile analysis area north and west of Yellowstone National Park in Park and Gallatin counties encompasses approximately 2.9 million km<sup>2</sup>. Of that total, the USFS administers approximately 87% of the area while state agencies manage approximately 1% of the area. Approximately 12% of the area is privately owned. Private lands are concentrated in and around the communities of Gardiner, Jardine, Corwin Springs, and West Yellowstone, as well as private land around the Richards Creek and Horse Butte areas near West Yellowstone.

## Livestock Abundance and Distribution

One private landowner raises cattle immediately north of Yellowstone National Park near the Reese Creek area. Cattle are also raised on private lands northwest of the Eagle Creek/Bear Creek area. During summer, cattle are also raised on private lands in the West Yellowstone area.

In general, livestock are permitted on national forest grazing allotments during late spring or early summer and taken off in the fall with no over-winter grazing (USFWS 1994). During winter, October to June, cattle are moved to lower elevations, often to farm and ranch headquarters on private lands.

No active cattle grazing allotments are located on public land in the Eagle Creek/Bear Creek, Hellroaring Creek, and Slough Creek areas. Domestic cattle grazing is not lawful in Yellowstone National Park.

Horse Butte is the only active cattle grazing allotment on public lands near the West Yellowstone area. A total of 182 cattle (cow-calf pairs) are permitted on this allotment from June 1 to October 15. For the Wapiti allotment located on the north end of the Lee Metcalf/Cabin Creek area, 222 cattle (cow-calf pairs) are permitted to graze from July 11 to September 30.

## Disease

The bacterium Brucella abortus, the causative agent for the disease brucellosis, can infect bison. The Yellowstone bison herd has been infected with brucellosis since 1917. Under controlled conditions, experiments have shown bison can transmit brucellosis to cattle (Davis et al. 1990). However, precautionary measures by the state and NPS have prevented brucellosis transmission from bison to cattle in Montana. Brucellosis may cause elk, bison, and domestic cattle to abort their calves during their first pregnancy, although subsequent pregnancies can be carried to full-term (General Accounting Office 1992). Three instances of bison aborting calves in

Yellowstone National Park have been documented (Meyer and Meagher 1995), but the actual abortion rate of this bison population is unknown.

Using standard serologic (blood-serum) tests, approximately 50% of bison in Yellowstone test positive for antibodies to Brucella abortus (Dobson 1993, Meyer and Meagher 1995, General Accounting Office 1992, Rush 1932, Davis 1989 and 1991). A positive test indicates that the animal's immune system has experienced a previous exposure to the organism. Microbiological culture of various tissues collected in the winter 1991-92 indicated that at least 12% of 218 Yellowstone bison killed that winter were infected with Brucella abortus (Montana Department of Livestock, unpubl. data, Dobson 1993, Meyer and Meagher 1995, General Accounting Office 1992).

Brucellosis is spread by direct contact with infected animals and brucellosis transmission among cattle is difficult to observe and document. When an infected animal is introduced into a brucella-negative herd, transmission does not usually occur until the animal aborts a fetus or calves, at which time the brucella organism is shed. Exposed animals may not develop the disease for over a year because of the long incubation period. During the incubation period, exposed animals will not develop a positive response on diagnostic tests because brucella lives within the host's cells. Most pregnant animals in newly infected cattle herds will abort following the variable incubation period. In chronically infected cattle herds, abortions are rarely observed, even though herd productivity is decreased (Blood et al. 1983). Therefore, brucellosis is most often transmitted between herds by the movement of infected animals into brucellosis-free herds before being detected. This can result in the potential movement of exposed or infected animals into several herds in several states or areas before the diseased animals have clinical problems or become positive on diagnostic tests.

A dedicated effort to eradicate brucellosis from the cattle population in the United States began with the National Brucellosis Program in 1934. Cattle herds were blood tested and test positive animals were removed. In 1947, the first Uniform Methods and Rules for brucellosis eradication was adopted. This document describes the standard procedures for surveillance, testing, quarantine, and restrictions on interstate movements of cattle. Under the program, the number of known infected cattle herds declined from 124,000 in 1957 to 68 by September 30, 1995 (Frye and Gilsdorf 1995). The number of undulant fever (human brucellosis) cases reported in humans declined from 6,300 in 1947 to 119 in 1994 (Centers for Disease Control and Prevention 1994, 1995). A substantial number of reported cases of undulant fever involve Brucella melitensis and B. suis in addition to other species of Brucella including B. abortus (Centers for Disease Control and Prevention 1994). Prior to 1983, CFR rules allowed states to be classified as brucellosis class-free even though a few infected herds remained within the state. After 1983, states



were declassified from class-free or not allowed to become class-free if any infected herds were found. Thirty-three states are now brucellosis class-free under the criteria described in the Title 9 Code of Federal Regulations and UM&R. Five of the remaining 17 states are expected to be brucellosis class-free within one year. The goal for completely eradicating Brucella abortus from domestic cattle and domestic bison in the United States is December 31, 1998.

### Visitor Use

Gardiner, Montana, is at the north entrance to Yellowstone National Park; West Yellowstone, Montana, is at the west entrance to the park. A large proportion of the visitors coming to Yellowstone National Park use the basic services and facilities provided in these communities while entering, leaving, or staying in the park. Both inside and outside Yellowstone National Park, these visitors take part in a wide range of summer and winter recreational activities. Examples of activities include hiking, sightseeing, fishing, camping, skiing and snowmobiling.

### Socioeconomics

Park visitors contribute significantly to the regional economy and specifically to the Gardiner and West Yellowstone economies. Big game hunters also frequent both communities during the fall and winter seasons. Winter recreation (snowmobiling and skiing) is economically more significant in West Yellowstone than in Gardiner.

Transmission of brucellosis from bison to cattle represents a relatively small risk but the potential consequences to the U.S. cattle industry are large. The perceived possibility of transmission causes other states and countries to impose additional testing restrictions or embargoes on cattle, adding significant costs to cattle production.

### Cultural Resources

#### Overview

A number of Native American tribes frequented the Yellowstone area. These tribes include the Crow, Shoshone, Bannock, Blackfeet, Nez Perce, Arapaho, Sioux, and Flathead, and possibly the Gros Ventre, Assiniboine, Salish, Pend d'Oreille, Kootenai, Kalispel, and Coeur d'Alene (Weixelman 1992, Replogle 1956, Topping 1888, Russell 1972, Josephy 1965, Trenholm 1972, Hyde 1986, Hoxie 1989, Madsen 1958, Janetski 1987, Haines 1977). These tribes still honor regional battlegrounds, burial areas, and other places of traditional importance (Weixelman 1992; Loendorf and Nabokov 1995; L. Whittlesey, pers. commun.).



Not all of the tribes lived in or travelled through the Yellowstone area at the same time. Euro-American fur trappers documented only one Native American group occupying areas within the park during the early and middle nineteenth century (Haines 1977). This group was comprised of Shoshonean-speaking bands known as "Sheep eaters."

A portion of Yellowstone National Park in the Reese Creek area has been called the "Game Ranch," the "Gardiner Addition (to Yellowstone)," and the "Cinnabar Triangle." Euro-Americans began settling there between 1871 and 1875.

In 1883, the Northern Pacific Railroad extended a branch line from Livingston, Montana, to the north boundary of Yellowstone National Park and that began significant tourist travel to the region. The train traffic also led to the establishment of a town named Cinnabar and many more settlers came to the Game Ranch area (Whittlesey 1995, in press).

The Stephens Creek area located south of Reese Creek was in private ownership for about 42 years until the Game Preservation Company purchased it in 1925 for the National Park Service. Currently, a NPS corral operation, employee residence, plant nursery, and equipment storage areas are located in the Stephens area.

### Archeology

Reese Creek area-- The NPS and USFS conducted archeological inventories in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation in the area of effect at Stephens Creek (Johnson 1995, Allen 1995). No National Register eligible or listed archeological resources are located within the area of effect.

West Yellowstone area-- The USFS conducted archeological inventories in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation in some areas of effect on the Gallatin National Forest (Griffin 1994). No National Register eligible or listed archeological resources are located within the areas inventoried for the proposed project.

### Historic Structures

Reese Creek area-- No National Register eligible or listed historic structures are within the area of effect of the Stephens Creek portion (part of the "Gardiner Addition") of the proposed project. As noted in the cultural resources overview, prior to NPS ownership, the "Gardiner Addition" was bordered by the Northern Pacific Railroad and included a town site and small ranches. The proposed project's area of effect is limited to that portion of the Gardiner addition on which private ranching occurred. The town site and railroad grade are well outside the area of effect. Hay production and livestock grazing were the

primary activities occurring on the private ranches in the Stephens Creek area. When the NPS acquired this land, the primary objective was restoring the land for ungulate winter range. Many of the ranching-related facilities, fences, and portions of irrigation systems were removed. No historic structures are located within the project's area of effect

West Yellowstone area-- No National Register eligible or listed historic structures are located within the area inventoried for the proposed project.

#### **Cultural Landscapes**

Reese Creek area-- As a result of the extensive historic disturbance in the Reese Creek area, little semblance remains of a historic landscape that can be associated with any historic period. The NPS attempted to return the Gardiner Addition to ungulate winter range by removing many of the ranch associated facilities. Cultivation of hay and livestock grazing no longer occurs. Crested wheatgrass and other exotics predominate in the former hayfields, and the NPS corral operation and equipment storage area are more recent additions to the area. National Park Service actions have not restored natural conditions in the area and the landscape exists without cultural integrity.

The Stephens Creek plant nursery exists as an isolated cultural feature within the landscape. In operation since the mid-1930s, the nursery is immediately east of the Stephens Creek corral and barn; it has not been evaluated for National Register eligibility. The proposed bison capture facility would be located east and north of the nursery approximately 2-25 m (5-75 feet) from the nursery fence.

West Yellowstone area-- No National Register eligible or listed cultural landscapes exist within the area inventoried for the proposed project.

#### **Ethnography**

The proposed project areas have not been surveyed for ethnographic resources. An ethnographic overview and assessment is currently underway in the park and is scheduled for completion in September 1996. This report will identify geographic areas and resources within the park that American Indians and tribes affiliated with the park traditionally used.

On June 21, 1994, Gallatin National Forest archaeologists met with a Crow Tribal Cultural Committee Chairperson to discuss the results of the 1994 cultural resources inventory of proposed bison management areas in Little Trail Creek (near Gardiner, Montana), Stephens Creek (Reese Creek area), and Madison Arm (near West Yellowstone). The Chairperson expressed concern that care be taken in the construction and use of bison handling facilities (Griffin 1994).

## **ENVIRONMENTAL CONSEQUENCES**

### **ALTERNATIVE 1. PROPOSED ACTION**

#### **Impacts on Yellowstone Bison Population**

Management actions during the past 10 years have removed an average of 147 bison each year (range 4-569) from the Yellowstone population. Past management actions removed no more than 18% (range 0.1%-18%) of the Yellowstone bison population, and these removals have not prevented the bison population from growing from an estimated 2,100 in 1985 to 3,900 in 1995.

Removing bison from the Reese Creek area would prevent bison use of a small portion of winter range in Yellowstone National Park. Bison also would be prevented from using lands (primarily private) north of the Yellowstone National Park boundary and Reese Creek drainage. To date, the Reese Creek area and lands immediately north of the Yellowstone National Park boundary have not been determined to be critical winter range for bison.

In recent years, bison have been observed using the Eagle Creek/Bear Creek area during winter, and this alternative allows continued use of this area, which the USFS manages as winter range for wildlife. In spring, most bison using this area migrate back into Yellowstone National Park.

The West Yellowstone area is described as marginal winter habitat and, prior to the 1980s, few bison used this area. The West Yellowstone area has not been determined important summer or winter range for bison. This alternative calls for removal and exclusion of bison from this area from May 1 through October 30 and allows for some bison to use the area during winter from November 1 through April 30.

Strategic hazing actions associated with attempts to divert or drive bison into capture facilities or move bison into Yellowstone National Park would impact those bison. Impacts to bison may include stress from hazing activities. Normal travel patterns would be disrupted during hazing. Other wildlife associated with the bison at the time of the action or in the path of the moving bison would also be temporarily disturbed. This disruption to bison and other wildlife would probably not unduly stress the animals, except during late winter (animals are typically in poorer physical condition during late winter). Stress would be increased with the number of times the hazing occurred and the severity of the environmental conditions at the time of the action.

#### **Impacts on Threatened and Endangered Species**

The proposed management activities are not expected to impact peregrine falcons because the majority of management actions would occur during the winter months at a time when these birds have migrated out of the area. Whooping cranes are not found in the affected areas.

During winter, bald eagles may be found along the Yellowstone River to the east of the Reese Creek area and may be present along open water corridors in the West Yellowstone area. Proposed actions are not expected to affect bald eagles.

Project areas are within situation 1 and situation 2 grizzly bear habitat. Grizzly bears can be found in or near the proposed project areas at any time during the spring, summer, or fall.

Bison would be monitored in the Eagle Creek/Bear Creek area and no impacts to grizzlies are predicted due to proposed management actions. Capture and handling operations in the Reese Creek area are not expected to affect grizzly bears. Most management activity is expected to occur during winter months when bears are hibernating, and the bison capture facilities are proposed in areas away from known winter den sites or spring grizzly bear use.

Winterkill may be an important food source for bears in interior portions of Yellowstone National Park (Mattson and Knight 1992). However, bison are not identified as a source of carrion for grizzly bears in the Reese Creek area during the spring. No bison winterkill is known to have occurred in the Reese Creek area (outside of the park) and recent management actions have included removal or burial of bison offal after processing bison carcasses in order to avoid creating a grizzly attractant in this area (K. Gunther, pers. commun.).

Historically, little, if any, bison winterkill probably occurred in the West Yellowstone area. Consequently, carrion from bison winterkill is not an established spring food source for grizzly bears in the West Yellowstone area. Management activities involving the removal of bison from the area are not predicted to change the availability of bison carcasses or affect spring grizzly use of carrion in the area. If bison winterkill occurs in the West Yellowstone area, grizzly bears might use the carcasses during the spring and this use is expected to continue. The proposed actions are not expected to affect grizzly bears.

Gray wolves are found in the northern portions of Yellowstone National Park. Currently, gray wolves do not use habitat in the Reese Creek or West Yellowstone areas, and immediate future use is not predicted due to high human use in these areas and the large amount of other suitable prey in other areas. Wolves in the Yellowstone area are designated as an experimental population, and no areas in the greater Yellowstone area are designated as critical habitat for wolves (USFWS 1994). The proposed action is not predicted to adversely affect gray wolves.

#### **Impacts on Other Wildlife**

Strategic hazing operations directed at moving specific bison into capture facilities or into the park may temporarily affect a small number of wintering elk, mule deer, and pronghorn antelope that frequent the Reese Creek area. These ungulates may become temporarily displaced and stressed as bison are moved from



one area to another. Hazing is expected to be infrequent, and such displacement is predicted to be temporary and would not significantly affect those animals. Similar effects are predicted for elk, mule deer, and moose inhabiting the West Yellowstone area.

Other ungulates may be captured unintentionally in temporary enclosures designed to hold bison. Some ungulates may escape the enclosure on their own. Animals unable to escape would be separated from the bison and released. Bison may physically injure other ungulates that are captured with bison in the capture facilities. The additional stress may affect individual ungulates, but this is not predicted to significantly impact ungulate populations using the winter range in the Reese Creek and West Yellowstone areas.

### **Impacts on Wetland Areas**

Wetland areas can be found along drainages and as ephemeral ponds or seep areas in several places throughout portions of the Reese Creek area. Capture facilities would be located away from sensitive wetland sites. Proposed management actions at the Reese Creek area are not expected to impact wetland areas.

More wetland sites occur in the West Yellowstone area compared to the Reese Creek area, especially near the Madison River, Cougar Creek, and Duck Creek. For the West Yellowstone area, capture facilities and wing fences would be located away from sensitive wetland sites. Proposed management actions at the West Yellowstone area are not expected to impact wetland areas.

In recent years, 100 or more bison have used the Eagle Creek/Bear Creek area during the winter months. These areas are generally drier open grassland and higher elevation forested areas. Riparian areas are generally restricted to streams. In the Eagle Creek/Bear Creek area, no proposed actions are predicted to impact wetlands.

Bison would be able to inhabit the Hellroaring and Slough Creek drainages north of Yellowstone National Park and the Lee Metcalf/Cabin Creek area west of the park. In these areas, proposed actions are not predicted to impact wetlands.

### **Impacts on Vegetation**

At the temporary capture and handling sites in the Reese Creek and West Yellowstone areas, mechanical impacts to above-ground plant material would occur in localized areas and include trampling of vegetation within the temporary holding pastures and corral areas. Potential capture sites in the Reese Creek area include previously disturbed lands consisting primarily of non-native and exotic plants. Significant damage to native vegetation is not predicted. Mechanical destruction such as trampling, rubbing, and hooking may also occur to common shrubs (sagebrush, rabbithrush, Chrysothamnus sp.) and trees (lodgepole) located within the bison-holding areas and possibly along wing

fences used to herd bison into the holding areas. Capture and handling facilities and wing fences would avoid rare and sensitive plant species, and no impact is expected. Some trampling may occur in the fenced areas of the capture facilities and this may affect underground plant material and soils. Some trampling of underground plant material and soils may also occur immediately along wing fences. Bison likely would eat any untrampled, palatable vegetation in the temporary holding facilities proposed for the Reese Creek and West Yellowstone areas.

## **Impacts on Cultural Resources**

### **Archeological Resources**

Reese Creek area-- Archeological resources do exist within the general Reese Creek area, but no National Register eligible archeological resources are located within the proposed area of effect (Stephens Creek). If, as a result of project implementation, archeological resources are discovered, project actions affecting those resources would be halted and those resources would be evaluated for National Register eligibility in consultation with Montana State Historic Preservation Office (SHPO). If the resources are determined eligible, then consultation with Montana SHPO and the Advisory Council on Historic Preservation would occur to determine a course of action that would protect the National Register eligible resources while allowing the project to continue.

West Yellowstone Area-- No National Register eligible archeological resources were located within the area inventoried. No constraints are placed on the location of facilities within the area surveyed at the Madison Arm location outside of Yellowstone National Park.

If, as a result of project implementation, archeological resources are discovered, project actions affecting those resources would be halted and those resources would be evaluated for National Register eligibility in consultation with Montana SHPO. If the resources are determined eligible to the National Register, then consultation with Montana SHPO and the Advisory Council on Historic Preservation would occur to determine a course of action that will protect the National Register eligible resources while allowing the project to continue.

### **Historic Structures**

Reese Creek area-- No National Register eligible historic structures are located within the area of effect.

West Yellowstone Area-- No National Register eligible historic structures are located within the area inventoried for the proposed project.



## **Cultural Landscapes**

Reese Creek area-- The Stephens Creek area is a heavily disturbed landscape that retains no cultural integrity. It is within this landscape setting that the proposed project would be placed. The Stephens Creek nursery exists as an isolated cultural feature in the larger Stephens Creek landscape. The proposed project would have no effect on the Stephens Creek nursery.

West Yellowstone Area-- No cultural landscapes exist within the area inventoried for the proposed project.

## **Ethnography**

The proposed project areas have not been surveyed for ethnographic resources. An ethnographic overview and assessment is currently underway in the park and is scheduled for completion in September 1996. Based on archeological inventories in the vicinity of the areas of affect, no known ethnographic resources exist that would be affected by the proposed action in either the north or west boundary areas.

## **Impact on Domestic Livestock Operations**

Because of past management actions of Montana and NPS, brucellosis transmission from wild, free-ranging bison to domestic cattle has not been detected. However, while some bison in this herd remain infected with the brucella organism, the possibility exists that an infected bison could shed the bacteria into the environment. The bacteria subsequently could infect domestic cattle if those cattle came into contact with a sufficient number of viable bacteria. If cattle in Montana were exposed to animals originating from an infected herd and became infected with the Brucella organism, the result would be increased costs to livestock producers of the area, loss of breeding stock that would have to be slaughtered, and extra costs associated with disease prevention for cattle herds in the area.

Management activities at the Reese Creek and West Yellowstone areas are designed to prevent bison from coming into contact with domestic cattle on either private or public lands (at times when cattle would be lawfully present on those lands). These management actions would significantly reduce the risk of transmission of brucellosis from wild, free-ranging bison to domestic cattle.

No domestic cattle operations or cattle-grazing allotments on USFS lands exist in the Eagle Creek/Bear Creek area, in the Hellroaring Creek and Slough Creek drainages, or in the Lee Metcalf/Cabin Creek areas where bison would be allowed. Bison presence on these USFS lands would not provide for transmission of brucellosis from wild bison to cattle and would not affect domestic cattle operations.

In the Reese Creek area, one private landowner raises domestic cattle immediately north and adjacent to Yellowstone National Park. Management activities in this area call for capture and removal of all bison prior to their migration onto private land thus cattle in this area would not come into contact with wild bison. Management activities would prevent brucellosis transmission from wild bison to cattle in this area.

In the West Yellowstone and Lee Metcalf/Cabin Creek areas, no domestic cattle are present during the winter months. Only one cattle grazing allotment exists on USFS land in the West Yellowstone area where bison could potentially migrate during winter months. Cattle are allowed on this allotment from June 1 to October 15, and bison would not be allowed in this area prior to November 1 nor after April 30. Only male and non-pregnant female bison testing negative for brucellosis would be allowed in this area, and Montana's brucellosis class-free status would not be affected. Management activities would prevent brucellosis transmission from wild bison to cattle in this area. Management activities would occur primarily during winter and are not predicted to affect domestic cattle operations.

As part of a settlement agreement to the lawsuit Montana brought against APHIS and NPS, the presence of bison in Montana and conformity with the provision of the interim bison management operating procedures would not cause a down-grade of Montana's brucellosis class-free status.

#### **Impacts on Visitor Use**

The proposed capture and removal of bison from the Reese Creek and West Yellowstone areas would not greatly affect winter visitor-use patterns of the area. Proposed facilities would avoid major winter recreation or visitor-use areas. Visitor use of areas immediately near capture and handling facilities may be restricted for security and safety purposes but restrictions are expected to be temporary, likely lasting from one to several days for each capture operation.

Visitor use and enjoyment of bison on USFS lands in the West Yellowstone area may be disrupted and displaced to areas inside Yellowstone National Park during spring and summer because management activities call for hazing or removal of any bison present on those lands from May 1 through October 31.

A gravel road exists inside Yellowstone National Park along the west side of the Yellowstone River from Gardiner, Montana, through the Reese Creek area. Public use of the gravel road, which is open year-round, may be temporarily restricted during management operations for security and safety purposes. Travel on the road may be delayed for a short time (minutes to hours), but alternate access to private property would be available via roads from Corwin Springs (approximately 7 miles north of Gardiner) and Point of Rocks (approximately 21 miles north of Gardiner).

No management actions other than monitoring are proposed for the Eagle Creek/Bear Creek, Hellroaring Creek, Slough Creek, or Lee Metcalf/Cabin Creek areas, and visitor use would not be affected.

## **ALTERNATIVE 2. CONTINUATION OF CURRENT INTERIM BISON MANAGEMENT PLAN**

Under this alternative, NPS personnel would continue to strategically haze bison back into Yellowstone National Park. National Park Service personnel would also continue assisting the state of Montana in shooting bison that migrate from Yellowstone National Park onto private and public lands in Montana. All bison shot would be processed and distributed to Native American tribes, social services organizations, or sold at state auction.

### **Impacts on Yellowstone Bison Population**

Since 1992, bison removals outside Yellowstone National Park have ranged from 0 to 307 in the Reese Creek area and 5 to 120 in the West Yellowstone area (Table 1). Under this alternative, no more than 11% of the Yellowstone bison population has been killed. Despite the removals, the bison population has grown from 3,426 in 1991-92 to 3,956 in 1994-95. Bison removals under this alternative are not expected to significantly reduce the Yellowstone bison population.

Under this alternative bison are killed, usually on private land, outside of Yellowstone National Park in the Reese Creek area. Bison are not allowed to use winter range north of the park in the Reese Creek area and, therefore, would not associate with domestic cattle. This alternative allows bison to use native and historic winter range within Yellowstone National Park south of the Reese Creek boundary area. To date, the Reese Creek area and private lands immediately north of the Yellowstone National Park boundary have not been determined critical winter range for bison.

In recent years, bison have been observed using the Eagle Creek/Bear Creek area during winter. Bison using the Eagle Creek/Bear Creek area would be monitored and no impacts to bison in this area are predicted. Bison moving beyond the Maiden Basin-Little Trail Creek hydrographic divide would be killed. In spring, nearly all bison the Eagle Creek/Bear Creek area migrate back into Yellowstone National Park.

During winter (November 1 through April 30) the Montana State Veterinarian would determine the bison to be removed from the West Yellowstone area. Bison present in the West Yellowstone area at any other time of year would be removed. Based on past management actions, few bison would be allowed in the West Yellowstone area, compared to about 40% of migrant bison that

might be allowed under the proposed action (Alternative 1). To date, the West Yellowstone area has not been considered important summer or winter range for bison.

Strategic hazing actions associated with attempts to divert or drive bison away from private lands or move bison farther into the park would impact those particular bison. Impacts to bison would be temporary and similar to those described in Alternative 1.

#### **Impacts on Threatened and Endangered Species**

Management actions under this alternative are not predicted to adversely impact bald eagles, peregrine falcons, whooping cranes, grizzly bears, or gray wolves for reasons similar to those presented in the Alternative 1.

#### **Impacts on Other Wildlife**

Strategic hazing operations directed at moving specific bison away from private property or into the park may temporarily affect a small number of wintering elk, mule deer, and pronghorn antelope that frequent the Reese Creek area, and elk, mule deer, and moose inhabiting the West Yellowstone area. Impacts of hazing to these animals would be similar to those described for Alternative 1.

#### **Impacts on Wetland Areas**

Under this alternative, management activities would occur in areas associated with the tributaries of the Yellowstone and Madison rivers. Infrequent hazing activities may cause minor or temporary impacts to site-specific areas where bison are hazed. Management activities under this alternative are predicted to have little impact on wetland areas inside or outside of Yellowstone National Park in the Reese Creek and West Yellowstone areas. Only monitoring of bison would occur in the Eagle Creek/Bear Creek, Hellroaring and Slough creeks, and Lee Metcalf/Cabin Creek areas outside of Yellowstone National Park, and no impacts to wetlands are predicted.

#### **Impacts on Vegetation**

This alternative does not include construction of capture and handling facilities and wing fences in the Reese Creek and West Yellowstone areas, and impacts to vegetation in these areas would not occur. Retrieval of bison carcasses outside of Yellowstone National Park and infrequent hazing operations may impact vegetation. Impacts would consist of trampled vegetation in areas where bison are hazed.

#### **Impacts on Cultural Resources**

Under this alternative, no structures would be constructed, and management activities would be limited to hazing activities. Actions under this alternative are not predicted to affect any cultural resources.

#### **Impacts on Domestic Livestock Operations**

Impacts to livestock operations would be similar to those described in Alternative 1.

#### **Impacts on Visitor Use**

Impacts to visitor use would be similar to those described for Alternative 1.



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Ranger Division  
Landscape Architect, Maintenance Division





## **APPENDIX A**

# **INTERIM BISON MANAGEMENT OPERATING PROCEDURES**

Revised 08-30-95

## **Introduction**

Management of bison which migrate from within Yellowstone National Park (YNP) along the north and west boundaries onto public and private land within Montana is essential to prevent the potential spread of brucellosis from bison to domestic cattle; to reduce the potential for damage to private property; to reduce threats to human safety; and, to provide for some free-ranging bison on adjacent federal lands that are not occupied by livestock. These operating procedures outline the action items necessary to implement cooperative management of bison by Montana Department of Livestock (DOL); Montana Fish, Wildlife & Parks (FWP); National Park Service (NPS); U.S. Forest Service (USFS); and, APHIS Veterinary Services (VS), hereafter referred to as the cooperators. Each action item will be discussed individually and will identify the state or federal agency with lead responsibility for the action. For some items, more than one agency may be listed. In this case, responsibility for the action is jointly held by all agencies to the extent permitted by each agency's legal mandate and jurisdiction.

These interim operating procedures modify procedures outlined in the 1992 Interim Bison Management Operating Plan for Yellowstone National Park (YNP). The reasons for revising operating procedures are: (1) the need for additional bison management to assure the State of Montana's ability to comply with the National Brucellosis Program and, thereby, maintain its brucellosis "Class-Free" status and the ability of Montana producers to freely market their cattle; 2) the extended time frame necessary for the completion of a long-term, multi-agency Bison Management Plan and Environmental Impact Statement (EIS); and, 3) the desire to reduce the number of bison that must be killed during the interim period. All procedures described herein are intended to be temporary and do not, in themselves, set any precedent for long-term wildlife management operations within and adjacent to YNP.

## **Authorities**

All bison management within YNP will be conducted under the NPS authorities of the Superintendent, or other official to whom that authority is delegated (e.g. the YNP Incident Commander). All Cooperator employees engaged in bison management actions within YNP will do so at the request and under the direction of the YNP Incident Commander. All bison management actions outside YNP will be carried out under the authorities of the State of Montana and will be done under the direction of the DOL Operations Chief.

## **Media Relations/Public Information**

The State of Montana and NPS share joint responsibility for the management of media relations and public information related to the interim operating procedures.

**Contacts:**

E.E. Mortensen, Executive Secretary, Montana Board of Livestock, Helena, Montana  
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**Organization**

The Incident Command System (ICS) will be used to implement actions/operations associated with these interim operating procedures. An official representative of each of the Cooperators will hold a position in the Incident Command (IC) structure to assure effective mission accomplishment.

The YNP Chief Ranger will designate an Incident Commander and Operations Chief for operations carried out within YNP; the DOL Operations Chief will serve as on-site Operations Chief for procedures carried out outside of YNP. At the request of the respective Operations Chief, and subsequent approval by their supervisors, employees of the Cooperators may serve as technical specialists, advisors, group leaders, incident information officers, group/crew members, or in any other appropriate capacity for any of the procedures described herein, for which they are duly qualified. Upon invitation of the respective Operations Chief and approval of the IC and their respective agencies, representatives of the Greater Yellowstone Interagency Brucellosis Committee member agencies may also serve in the implementation of the operations and research procedures described herein.

An Incident Action Plan (IAP), including a complete organization chart, will be prepared for each day on which NPS employees assistance in capturing or shooting bison is anticipated. The organization chart will list, by name, employees/individuals participating in the operation for that day. The IAP will also include a security plan, safety plan, EMS plan and communications plan. The majority of the plan should be prepared prior to the incident with the organization chart the only portion of the IAP requiring completion on the day of the operation.

The agencies will conduct an annual interagency review to assess success in meeting the objectives of these interim operating procedures and consider necessary revisions.

**Monitoring and Reporting of Bison Movement and Activity****Bison movement and activity within YNP:**

The YNP Chief Ranger will be primarily responsible for monitoring, recording, and notifying the DOL Operation Chief of bison activity within YNP. From June 1 to October 1, monitoring activities will likely be unneeded as few bison are expected to move toward the north and west boundaries. However, as the YNP Chief Ranger deems appropriate, monitoring activities can occur at any time of the year.

Monitoring in the park will increase in frequency as the distance of bison from the north and west boundaries decreases. All cooperators will be notified when it appears likely that bison will migrate out of the park (within 8-12 hours) near West Yellowstone, MT, or in the Reese Creek boundary area.

Bison activity west of Hellroaring Overlook and west of Seven Mile Bridge will have movement activity reported, monitored, and recorded daily from December 1 through March 1 and throughout the remainder of the year as bison activity dictates and/or as directed by the YNP Chief Ranger. Reports of bison activity from the field to the YNP Chief Ranger will occur daily, Monday through Friday, by 10 a.m. and to the Communications Center by 10 a.m. on weekends and holidays. The YNP Chief Ranger will determine when aircraft will be used to monitor bison movement within YNP.

A copy of all reports initiated by YNP employees related to bison monitoring, hazing, trapping, shooting and other management actions with these interim operating procedures will be maintained by the YNP Chief Ranger.

The following general monitoring schedule will be in effect during those times when bison are most likely to move out of the park. This schedule will be considered the minimum acceptable monitoring frequency, with the understanding that more frequent monitoring may become necessary.

#### **North Boundary Area Monitoring Schedule:**

Lamar Valley to Hellroaring Overlook: Once Weekly  
Hellroaring Overlook to Entrance to Blacktail Plateau Drive: Three Times a Week  
Entrance to Blacktail Plateau Drive to the North Entrance: Daily  
Mammoth to the North Entrance: Twice Daily When Bison are Present

#### **West Boundary Area Monitoring Schedule:**

Madison Junction to Seven Mile Bridge: As Necessary  
Seven Mile Bridge to Barns Road: Daily  
Barns Road to Park Boundary (U.S. 191): Daily as Bison Move West of the Barns Road

#### **Monitoring Bison Movement and Activity Outside of Yellowstone:**

NPS will be responsible for monitoring and recording the presence of all bison outside of the park in the Eagle Creek/Bear Creek area, twice weekly when bison are present and daily, as bison approach the Little Trail Creek-Maiden Basin hydrographic divide. DOL and FWP will assist NPS with the monitoring of bison in the Eagle Creek/Bear Creek and Reese Creek boundary areas.

DOL, with assistance from FWP, NPS and USFS, will be responsible for monitoring and recording the presence of all bison, three times weekly, when bison occur outside of the



park in the West Yellowstone area. DOL and FWP will provide to YNP copies of pertinent monitoring and other management reports to become part of the historical record to be maintained by the YNP Chief Ranger.

### **Strategic Hazing**

Strategic hazing of bison may be attempted to discourage bison from leaving the park, to move bison further into the park, away from the park boundary or to move bison back into the park from outside the park. Strategic hazing includes any management action designed to move bison back into the park or to deter bison migration out of the park. Hazing also may be used during operations to capture migrant bison. The timing, location and duration of hazing within the park will be determined by the YNP Chief Ranger. The timing, location and duration of hazing outside the park will be determined by the DOL Operations Chief. All hazing activities will be documented on a 10-343 Case Incident Record under the pre-determined bison management case incident number.

### **Bison Distribution**

Management actions implemented pursuant to these interim operating procedures will limit the distribution of bison to Yellowstone National Park and to certain public lands that are immediately adjacent to YNP. The distribution of free-roaming bison thus will be limited to times and locations in which the risk of brucellosis transmission from bison to domestic livestock can be controlled. Locations of the management actions that will occur pursuant to these interim operating procedures are depicted in the attached maps.

Management actions will prevent bison from leaving YNP in the Reese Creek boundary area (see map) because the adjacent area is private land. Bison that evade capture and leave YNP in this area will immediately be removed, through the harvest of migrant animals by agency personnel.

All bison that leave YNP in the vicinity of West Yellowstone during the period May 1 through October 31 will immediately be removed or hazed back into the park. During the period from November 1 through April 30 management actions will remove all bison that move onto private lands (with the consent of the private land owner) and restrict bison on public lands to males and non-pregnant females that have tested negative for brucella antibodies.

No effort will be made to remove any bison in the Eagle Creek/Bear Creek area until the animals move north and west and approach the boundary between the Gallatin National Forest and private property in the vicinity of the Little Trail Creek-Maiden Basin hydrographic divide (see map). Bison that approach the Little Trail Creek-Maiden Basin hydrographic divide will be removed from public land.

No effort will be made to remove bison from other Gallatin National Forest lands that are contiguous with YNP; are allocated to land uses that preclude livestock allotments; and, geographically restrict further movements of bison. Such areas occur north of Grayling Creek/Fir Ridge in portions of the Lee Metcalf Wilderness and Cabin Creek Recreation and

Wildlife Management Area (see map) and in the Hellroaring and Slough Creek drainages in the Absaroka-Beartooth Wilderness.

### Capturing Bison

Live capture is the preferred method for removing bison that move or may move from YNP into Montana. Capture facilities will be operated for the purpose of preventing all bison from leaving YNP in the Reese Creek boundary area and to control numbers of bison that move onto public lands in the vicinity of West Yellowstone.

Portable and temporary capture and handling facilities, will be maintained at the Reese Creek boundary area and, potentially, at several locations at or near the YNP boundary in the West Yellowstone area. Bison will be captured by hazing, herding or baiting. In the Reese Creek boundary area, hazing from within YNP to the capture facilities will be limited to bison that occupy the Stephens Creek flat, generally north of Stephens Creek. In the West Yellowstone area, hazing within YNP will be limited to those bison that occupy areas in the immediate vicinity of the trap sites. At all trap sites, baiting will be limited to quantities that are sufficient to entice animals in the immediate vicinity of the trap and that will be immediately consumed during the capture operation. All bait will be placed within 150 yards of the capture facility. Any bait remaining after the capture operation will be removed.

All bison captured in the Reese Creek boundary area will be transported to a USDA or state certified slaughter facility. The only exceptions might include the release of selected animals for research projects that have been approved by the cooperating agencies. These animals will be identified with an electronic and with an unobtrusive visual marker and released in a manner that assures their return to YNP or they may be transported to an established research facility.

All captured bison in the West Yellowstone area will be tested for brucellosis. All sero-negative males and sero-negative, non-pregnant females will be identified with an electronic marker; identified with an unobtrusive visual marker; and, released. All sero-positive bison and all pregnant females will be transported to a USDA or state certified slaughter facility.

Vaccination of sero-negative males and sero-negative, non-pregnant females would be desirable. However, an appropriate vaccine is not currently available. If preliminary studies on the use of RB51 in bison suggest that this vaccine is safe and effective, field studies may be initiated during winter 1996-97 using bison that are released in the West Yellowstone area.

Capture facilities will not be employed in the Eagle Creek/Bear Creek area, Lee Metcalf Wilderness and Cabin Creek Recreation and Wildlife Management Area or the Absaroka-Beartooth Wilderness.

Participation in capture operations by federal agency personnel will be fully documented by the NPS, USFS and VS team leaders on an NPS Case Incident Record under the pre-determined bison management case incident numbers. DOL capture actions will be documented by the DOL on the appropriate state form.

## Shooting Bison

Harvesting of bison by agency personnel will be used primarily for the removal of individual and small groups of bison, in situations where live capture is not feasible or for the removal of larger groups of bison that have evaded the capture facilities; for the removal of bison that approach the Little Trail Creek-Maiden Basin hydrographic divide; and, generally, for the removal of all other bison that originate from YNP and move into locations in Montana that are beyond the acceptable distribution of bison, as specified in these interim operating procedures.

Harvesting of bison by agency personnel shall be conducted pursuant to DOL's authority to remove bison that are infected with or exposed to a dangerous disease that may spread to domestic livestock or jeopardize Montana's compliance with federal/state administered disease control programs. Upon the request of the DOL Operations Chief to the FWP Operations Chief and to the YNP Chief Ranger, FWP and NPS will assist DOL personnel in removing groups of bison which have left the park. The DOL Operations Chief will identify and prioritize the bison to be shot.

The YNP Chief Ranger will identify NPS operations team members and will assure the preparation and maintenance of appropriate documentation for all activities associated with removing bison in which YNP staff are involved. NPS personnel will work as a team; normally consisting of a shooter, a spotter, park rangers responsible for maintaining inner perimeter security for the NPS employees and a team leader. Spotters will be fully qualified shooters. All NPS shooting action will be fully documented by the NPS team leader on an NPS Case Incident Record under the pre-determined bison management case incident numbers listed earlier. DOL and FWP shooting actions will be documented by the DOL on the appropriate state form.

## Permission to Operate on Private Land

DOL will be responsible for securing the necessary permission and/or approval to capture or to harvest bison on private land. Such permission or approval will be obtained prior to the initiation of any management action on private land. Permission or approval should also cover the retrieval of dead bison, including any limitations on access or field dressing. Any restriction or condition attached to capturing or shooting on private land will be made clear to the capturing and shooting teams and those individuals responsible for slaughtering, field dressing or transporting bison or bison carcasses.

## Access/Approval to Operate on USFS Land

A representative of the USFS will be notified when bison are to be hazed, captured, harvested or otherwise removed from lands administered by the USFS. The USFS will also provide direction, including limitations on the capture or the retrieval and field dressing of dead bison on lands administered by the USFS. The USFS will ensure that consultation with U.S. Fish and Wildlife Service is initiated when threatened or endangered species may be an operational concern on USFS lands.

### Maximum Number of Bison to be Removed per Day

The maximum number of bison to be removed per day will be determined by the Operations Chief responsible for the operation on a daily basis and will largely be determined by the number of animals, location of bison, the risk those animals pose to private property, human safety, and domestic livestock, and the capability to process the bison carcasses and conduct prescribed research activities. However, except in the case of immediate threat to human safety or significant private property loss, bison will not be removed until sufficient personnel are available to process the animals for carcass disposition in an expeditious manner.

### Assurance of General Security

The DOL Operations Chief will contact local law enforcement agencies to assure that appropriate actions are taken to provide for the general security of all personnel involved in hazing, capturing, shooting, or processing bison outside YNP. The YNP Operations Chief will be responsible for similar security assurance for all operations within YNP.

### Slaughter, Field Dressing and Transport of Bison

The DOL Operations Chief will assure that personnel are available to slaughter, field dress, transport bison or dispose of bison that are removed under the terms of these interim operating procedures.

Slaughter of bison will emphasize humane and cost-effective procedures and will occur outside of YNP boundaries. The preferred method of processing bison and bison carcasses is to slaughter at or near the capture sites, with the use of portable, USDA certified slaughter facilities. However, portable slaughter facilities is an emerging technology and such facilities may not be available. As an alternative to slaughtering on site, live bison will be transported, in accordance with state and federal regulations, to USDA or state certified slaughter facilities. Bison that are transported will be sorted and loaded as humanely as possible and in a manner that reduces stress and strife during shipment. Bison that are shot will be salvaged, if possible and practical. Bison carcasses will be sold at public auction to offset costs to cooperating agencies for capturing and processing.

### Maintenance of Records and Accountability for Bison Removal

DOL will be responsible for the accountability of bison carcasses, heads and hides that result from the removal of bison according to these interim operation procedures from the time that bison are identified for removal until they are sold at public auction.

### Collection and Analysis of Blood and Tissue Samples

Blood and tissue samples may be collected for the purpose of disease surveillance. If samples are taken for disease surveillance, DOL will be responsible for the collection of blood and tissue samples from bison that are slaughtered or shot according to these interim operating procedures.

DOL will assure that appropriate personnel, including at least one veterinarian, are on site to accomplish sample collection. Personnel from cooperating federal agencies, in cooperation with DOL, may assist with the collection of blood and tissue samples.

Tissue samples will be collected from all sero-negative, pregnant females that are consigned for slaughter in the West Yellowstone area, following the complete sampling protocol developed by the Greater Yellowstone Interagency Brucellosis Committee. VS, with assistance from NPS, DOL and FWP, will provide qualified personnel to conduct necropsies and collect tissues. VS also will be responsible for all culture and serology. Logistic considerations that preclude collection of tissues samples from sero-negative, pregnant females will not otherwise constrain the capture and removal of bison from the West Yellowstone area.

DOL and VS will share copies of the results of all analyses with the other cooperators.

#### APPROVAL

Signature:

Date:

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Superintendent, Yellowstone National Park

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Regional Director, Animal and Plant Health Inspection Service,  
Veterinary Services

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Forest Supervisor, Gallatin National Forest

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Chairman, Montana Board of Livestock

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Director, Montana Fish, Wildlife, & Parks



